

High-Power, High-Efficiency 1.907nm Diode Lasers, Phase II

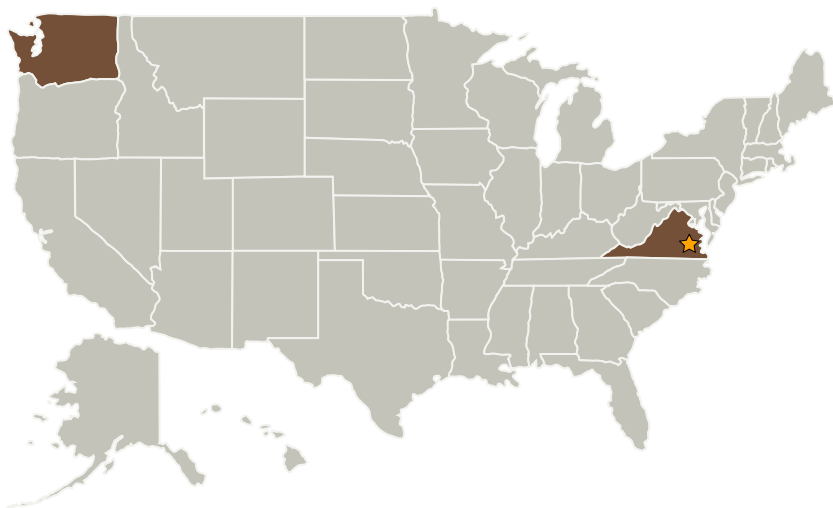
Completed Technology Project (2006 - 2008)



Project Introduction

nLight developed high-power, high-efficiency laser diodes emitting at 1907nm for the pumping of solid-state lasers during the Phase I. The innovation brought to bear at 19-xxnm wavelengths nLight's design knowledge and experience from its highly successful 9xx-nm and 14xx-nm, high-efficiency and high-power laser diode programs. The expected performance for the laser at the conclusion of the phase I was 25% electrical-to-optical (E/O) conversion efficiency and 18 W continuous-wave power (CW) - both measured at 15C. The program was highly successful in achieving performance of 25W and 23% efficiency at 20C (5C warmer than projection). Such lasers meet the brightness and power requirements for the direct pumping of the quasi 4-level 5I7 to 5I8 transition in singly-doped Ho:YAG lasers. This work can readily be extended to 18xx-nm and 20xx-nm with comparable performance for application to the pumping of other solid-state lasers.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
nLight Photonics Corporation	Supporting Organization	Industry	Vancouver, Washington



High-Power, High-Efficiency
1.907nm Diode Lasers, Phase II

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

High-Power, High-Efficiency 1.907nm Diode Lasers, Phase II

Completed Technology Project (2006 - 2008)



Primary U.S. Work Locations

Virginia

Washington

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers